We claim:

1. A method of selecting polymerization catalysts from a multiplicity of polymerization catalysts on the basis of their catalytic properties which comprises

   - a pretreatment step in which a multiplicity of catalyst precursors or catalyst supports are converted in parallel into polymerization catalysts in an array of reactors, where the pretreatment comprises at least one thermal treatment step at from 250 to 1200°C,

   - a polymerization step in which at least one starting material is converted with the aid of the respective polymerization catalysts under prescribed polymerization conditions into at least one polymer product, and

   - analysis of the polymer product or products in respect of its composition and/or chosen properties.

2. A method as claimed in claim 1, wherein the polymerization step is carried out in parallel for the multiplicity of catalyst precursors or catalysts supports in an array of reactors.

3. A method as claimed in claim 2, wherein the pretreatment step and the polymerization step are carried out in the same array of reactors.

4. A method as claimed in claim 2, wherein the conditions in the pretreatment step and/or polymerization step in the respective reactors differ in at least one physical parameter.

5. A method as claimed in any of the preceding claims, wherein the catalyst in the respective reactors differ in at least one chemical property.

6. A method as claimed in any of the preceding claims, wherein the polymerization catalyst is an inorganic, in particular mineral catalyst.

7. A method as claimed in claim 6, wherein the catalyst is a Phillips catalyst.

8. A method as claimed in any of the preceding claims, wherein a feed stream comprising at least one monomer is fed continuously to the respective reactors during the pretreatment step and/or the polymerization step.

9. A method as claimed in claim 8, wherein, during the pretreatment step and/or the polymerization step, a feed stream is passed through the respective reactor in such a way that a fluidized bed of catalyst is produced.

10. A method as claimed in any of the preceding claims, wherein the polymer product or products is selected from the group consisting of polyethylene, polypropylene, poly-1-butene and their copolymers and/or stereoisomers.

11. A method as claimed in claim 10, wherein the chosen properties of the polymer product are selected independently from the group consisting of the density, the molar mass distribution M_w/M_n and its moments, the limiting viscosity in solution in accordance with ISO 1628, the melt flow rate in accordance with DIN EN ISO 1133 and the proportion of comonomer.

12. A method as claimed in any of the preceding claims, wherein the thermal treatment is carried out at from 350 to 1000°C, in particular from 400 to 925°C.

13. An array of parallel reactors for implementing the process as claimed in any of claims 1 to 11, wherein each reactor has

a) a housing (1) which can be sealed from the outside and has a lower part (3) which is provided with a bottom (10) for accommodating a bed of a catalyst and an upper part (2) which can be connected in a sealed manner to the lower part (3),

b) an inlet (4) for introducing a feed stream into the reactor with an inlet opening (8) which is directed into the interior of the reactor and is arranged so that it projects into the catalyst bed and the feed stream allows fluidization of the bed to form a fluidized bed (9) of catalyst, with no internals which restrict the extent of the fluidized bed are present within the housing (1), and

c) an outlet (5) for discharge of the outflow stream from the reactor.

14. An array of reactors as claimed in claim 13, wherein the inlet is configured as a capillary (4).

15. An array of reactors as claimed in claim 14, wherein the capillary (4) is sealed into the upper part (2).

16. An array of reactors as claimed in any of claims 13 to 15, wherein each reactor has a first temperature control unit which serves to control the temperature of the respective reactor

and comprises a heating and/or cooling element (6) located at an outer surface of the lower part (5) and a temperature sensor (7) for measuring the temperature in the fluidized bed (9).

17. An array of reactors as claimed in any of claims 13 to 16 having a second temperature control unit which serves to control the temperature of the feed stream and is thermally connected to the inlet (4) outside the reactors.

18. An array of reactors as claimed in any of claims 13 to 17, wherein the reactors are made of fused silica or stainless steel.